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# Trade Costs Algorithm in Manoilescu Generalised Scheme

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## Abstract

The study of the comparative advantage's scheme, using the modified prices because of the trade costs in terms of a real two product barter, brings us on a “previous” position towards the merchandise exchange using the currency. In this new algorithm of scheme, the remarks include in the formal analytical plan the prices' increase cases, determined by the tariff and non-tariff measures and also by the reduction ones through subventions or other similar measures of these. Through the national/regional existence of some of these measures (Hagen, 1958) is supposed to be a sustainer of the optimum economic behavior (more efficient) of the exchange agents, found in a certain economic space and time, and also in an economic environment expected due to the introduction of this kind of economic and financial instruments. The observation of the way how the trade costs influence, comprehended in the widest meaning possible, assures the partial observation of the national interest's interference with the individual one through the legal and economical norms, necessary to be sent in the hierarchy's synchronize (similar and simultaneous) of the products over the comparative advantage measured through gains from trade with the established one according to the efficiency. The effects determined by the efficiency's modification – as it will be deducted in the second stage of Manoilescu generalized scheme – are included in the

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comparative advantage's size. The trade costs' case represents in a certain way the repetition of the one of the same initial internal and international prices' usage in a barter exchange. The main remark is that now a higher consumption of resources takes place because of the products' transfer to and from far economic areas and also in connection with some national custom house's pass beyond which other legal and economic standards, usually, are used.

*Keywords:* comparative advantage, gains from trade, Manoilescu generalized scheme, entropy law, resources saving.

*JEL code:* F17, Q32, Q56, B41

The constant task which we want to solve is to identify the context in which can be used the calculation formulas regarding the comparative advantages' measurement, made by the economic entities for most cases through the approach of the defined hypotheses in typical cases similar to those from the real empirical world. This way there can be permanently checked if through the deducted scheme the identification and increase efforts of the comparative advantage of each economic entity (the analytical economy's principle) are reduced. In other words we want that through rewriting the formulas from the deducted algorithm of the simple barter case (typical) a more exact approximation of the comparative advantages of the two economic entities would be made through taking in consideration the different clauses which involves external costs, excluded in the initial prices considered in this basic scheme (Dogaru Vasile, 2000; 2005). Observing in more details the buying-selling actions' reality it appears obvious that each external goods exchange requires various tariff and non-tariff efforts from which the transportation ones which presently have a relatively increased role (Harrigan, 2003). Next to these, other international trade costs – regarding various tariff and non-tariff measures or, in general, all the transportation costs – gives us a full picture of these trade costs, sometimes called external costs.<sup>1</sup>

Each from the initial prices of the two products will be changed with the unitary level of these costs.

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<sup>1</sup> The various costs' inclusion, which adds to the initial prices – in the external costs' category – considers the necessity of some formalization in the Evariste Galois way (Georgescu-Roegen, 1971) in order to be able to observe the change of the comparative advantage's size, according to Manoilescu's generalized scheme. The detailing of some cases and the size's identification of advantages towards the new efforts, taking in consideration in an actual case with the respect of the globality's principle, can be made using as an instrument this new algorithm.

$$p_e + c_{E\ ex} = p_{me} ; p_i + c_{E\ im} = p_{mi} \quad (1)$$

where:

$p_e, p_i$  - internal initial prices from the E and I country;

$p_{me}, p_{mi}$  - internal changed prices from the E and I country;

$c_{E\ ex}, c_{E\ im}$  - the external unitary costs of the E and I exporting entities, necessary for the achievement of the Pr1 and Pr2 products' exchange.

Through the importation from I country to E country of Pr2 product – according to the initial scheme (Dogaru, 2005), the price, changed in correspondence with these costs, will be *neutralized* in our analytical scheme, from the origin's perspective, this being symbolized by  $p_{me2}$ . Therefore the symbol refers to a product spatial found in E country although this is from the I country. Pr 1 product's initial price from E country, exported in I country, will be changed because of the exportation costs' size, this being expressed by  $p_{mi1}$ . The same suppositions are made also for the case regarding the change of the internal products' prices, the neutralization issue being yet excluded.

The relative total advantage's formula (Dogaru, 2005), used in the new terms, will have the same shape (2).

$$A_{vmrt} = \frac{p_{me2}}{p_{me1}} : \frac{p_{mi2}}{p_{mi1}} \quad (2)$$

where:

$p_{me\ 1(2)}, p_{mi\ 1(2)}$  - the modified internal prices from E and I country of Pr1 and Pr2 products

Note: In the formula (2) the trade costs are proportionally distributed; see the difference versus (7).

Correspondently, the relative modified advantage's formula for E economic entity will be:

$$A_{vmrE} = \frac{p_{me2}}{p_{me1}} : \frac{P_2}{P_1} \quad (3)$$

If these costs are proportionally distributed the relative advantage remains the same and the absolute one would increase because the initial prices are increased with the trade costs. The resolution isn't viable because in other initial terms which would remain the same – measured as trade gains – it will decrease. Therefore, *the reference point* isn't well established.

The orienting point is necessary to become (temporary) a case in which each entity trades on its local national markets the two products obtained either through production or through buying. In order to get as closer possible to the real exchange terms we'll suppose that the entities E and I can be simultaneously wholesale merchants, so that  $p_{e1}$ ,  $p_{e2}$ ,  $p_{i1}$  și  $p_{i2}$  will be accepted by the buyer in the en-detail net – or wholesale, for the merchandises for the intermediate consumption – being this way internally sold on the distribution chain to the final consumer (Dogaru, Vasile, 2006).<sup>2</sup>

In a general preview, for started it has been supposed the case in which the  $p_{e2}$  price's modification of Pr2 imported merchandise in E country includes also the variant of the overcome of this merchandise's existent internal level and established as a temporary reference point. In a similar way the same judgment can be made for Pr1 product in I country having  $p_{i1}$  as initial price on the internal market, now being imported from E country and commercialized (probably) next to the native one. This new case of increase of the internal prices' increase over the existent level of the same manufactured goods in two different countries would generate most probable on a normal market – according to the request and offer law – a decrease of the total sold volume from this product compared to the initial case. The new situation includes also the case regarding the simultaneous of the price's increase and the marketed quantity's decrease – compared to the initial one of the importation's lack in which the price's raise isn't necessary - as yet a total advantage's increase would still be achieved.<sup>3</sup>

A problem which frequently occurs, that of the imported merchandise's superiority or inferiority of the quality compared to the existent one on the internal market is necessary to be cleared up. Any qualitative differences can support in the analytical algorithm's environment the establishment of a different price of the imported products compared to the existent one on the internal market (the rationality's principle in the exchange action of the consumer). In these terms a comparison between the two prices can be satisfyingly made in the basis of the main characteristics according to the hedonic price's hypothesis (Triplett, 2004; PAL, 1987, vol I, *Hedonic prices*). The

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<sup>2</sup> The observation and understanding in more details of this case makes according to the comparative advantage's algorithm in the internal exchanges.

<sup>3</sup> The entropy's reduction through smaller resources consumption, in this case though the external costs' relative decrease, noticeable only from the effects' perspective over the customer, already appears necessary to be studied. The matter is yet important and requires to be followed from this perspective but yet isn't strictly the subject of the present study. In forward we will consider in our observations that in the empirical economy in the exchange's achievement case the existent internal prices won't be overcome by the prices changed with the unitary size of the trade costs of the imported products. The reverse of the products from the scheme of the initial different exchange between the two countries in which the two products are imported, because of the (unproportional) prices' size through adding the trade costs, yet found under the initial internal prices, is a case which can occur and requires to be studied.

relative comparison of the merchandises' qualities towards the prices' size is an initial requirement in identifying the comparative advantage's existence. Any negligence of these differences in the price's establishment followed by, for example, the importation's blockade, could cause the external competition's absence on the national markets as so an economic sector could turn to a relative autarchy caused by the inexistence of some competitive market and, in forward, to a technological and organizational regress.<sup>4</sup> Moreover, the constant and simultaneous observation of the qualities and prices at the similar products requires to be followed by some reference levels' settlement (at prices and qualities). The process capacity's support of the information, in connection with the relation between prices and similar goods' qualities by the entities and the buyers is a condition necessary to the operation (the action's productivity increase) of external trade as well as the internal one in the exchange processes in a national economy.

A case which can occur in economy is that of the internal production's absence of the imported merchandise. In this case the initial internal price can be deducted in the basis of a reference price of a similar good or using the dummy variables according to the hedonic price's hypothesis. (KKHS, 1975). In economy, these instruments' usage can assure an adequate comparison of the goods' prices having similar qualities and utilities.

In the basis of the main premises and directions of observation previously defined a general frame of study for the external (trade) costs has been created having temporarily settled as a reference point the internal commercializing variant. Therefore, in all our previous judgments the lack of accepting the circumstance possibility will be taken into consideration, in normal terms, according to a bounded rationality, to sell the imported merchandise for a bigger price than the correspondent one of the internal manufactured merchandise (having the same quality).

In the deducted formulas' basis from Manoilescu generalized scheme the simplest case has been taken in consideration: the trade costs' distribution from the barter actions has been supposed proportionally with the four prices' size. It has been quite easily remarked that the relatively total

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<sup>4</sup> The establishment of the autarchy's hypothesis in the analytical study of the comparative advantage's measurement through prices isn't strictly necessary. On the other hand, at least in the last century, a total economic isolation can't be considered for the majority of the people in the world. For the present trade perspective, in terms of the existence of the globalization's process and of the various tariff and non-tariff measures, the autarchy term's necessity taken as a reference point can't be sustained. The prices' observation in the basis of the hedonic price's hypothesis, in same quality conditions, will lead us to the remark that these prices won't be equaled, most probable, as that on the empirical market (Dogaru, 2006) it can be acquired either internal merchandise or imported. In fact, the autarchy's premise is useless being included through the past production and exchange terms in the initial prices' size which become a reference point (Dogaru, 2005).

advantage's size is maintaining. If neither the international price – the ratio between  $P_1$  and  $P_2$  prices – doesn't change towards the initial case supposed without the external costs, it means that the relative advantages of the two sides are maintaining after some new possible negotiations. The absolute initial value advantage of the two parts are increasing because  $p_{me1}$  price from E country and  $p_{mi2}$  from I country are bigger than the initial ones, these being used in the formula next to the relative advantage and quantities in determining its size. In this case we have proved that neither of them is viable for now. If the changed prices will be bigger than the internal existent ones on the own market the exchange is possible but yet, as it has been shown, it most probable that the two merchandises' volume for sale will reduce if other elements, which are here untaken into consideration, will be identical.<sup>5</sup> On a competitive market in case of overcoming the internal prices the customer would choose the internal product because, for example, in E country  $p_{e2}$  correspondent price of the native product would be smaller than  $p_{me2}$  new price, being calculated in equivalent quality and having the unitary correspondent trade costs included. The judgment is similar for I country.

The proportional distribution's case of the costs between the two entities through the four prices – similar with the comparative advantage's equal distribution between England and Portugal in Ricardo's famous example – has been considered in order to eliminate from the start a possible misunderstanding. These case's analysis initially clears a case in the international exchange and which could seem paradoxical from Manoilescu generalized scheme's point of view: no matter the trade costs' level the relative advantages would be identical and the absolute ones which interests us in the last instance would increase once with the changed prices' size over the initial ones because of the trade costs. The case, as it will be grounded in forward, has been possible to be accepted because of the establishment's absence of some analytical borders of the internal exchange processes (Georgescu-Roegen, 1971). The trade costs have been entirely and proportionally given to the four copies-products.

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<sup>5</sup> It can be noticed that once with the external exchange's achievement the products' number is now twice: the initial established ones as a reference point and the similar imported ones. The presence on his market in the same time and space terms of multiple similar goods, having different prices, isn't against the law of one price. The similar products, but not identical, as a use value normally have various qualities and, therefore, different prices in the empirical reality. The remark over the existence's absence of the prices' equality of the production factors included in each of the correspondent prices of the two exchanged prices, including the transactional prices connected to the travel in time and space, which determines a different size of the unitary price is an exchange's premise and sustains the identification's necessity of the comparative advantage in a real possible exchange.

As it has been episodically proved, following in more details the empirical reality,  $p_{e2}$  and  $p_{i1}$  initial prices at which the two internal merchandises are sold must be compared with the ones calculated (changed) on the market of the two imported products,  $p_{me2}$  and  $p_{mi1}$ , because of the trade costs appearance. The native copies from these imported merchandises are in forward sold also in present on the internal market from the origin country. Also, we supposed that only the prices of the imported products are changing in the destination country.

The hypothesis from the previous case with all the proportionally modified prices is suspended. Comparing the prices, and also guaranteing the respect of the hedonic price's hypothesis, the necessary condition of this exchange's launch is, according to the requires of the comparative advantage measured at its maximum value, as each of the forward (modified) correspondent prices to the imported merchandises, to be smaller or at least equal to those existent on the internal market.

(4)

$$P_{me2(I)} \leq P_{e2(E)} \quad ; \quad P_{mi1(E)} \leq P_{i1(I)}$$

Note: the created prices are calculated in quality equivalent as in forward the products are supposed, having this reference point, to be identical in the basis of the hedonic price's hypothesis. The letters between the brackets, E and I, from the above mentioned inequalities indicates us the product's origin country and the small letters the place where they are sold.<sup>6</sup>

In order to identify the comparative advantage's existence the trade costs are going to be distributed in forward only for the imported products' prices.<sup>7</sup> If the two economic entities distribute the costs over the imported products' prices –  $Pr_2$  for E entity and  $Pr_1$  for I entity – although the trade costs are made also for the exported price but yet only in favor of the other product's importation, the relative comparative advantage changes towards the initial formula.<sup>8</sup> In

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<sup>6</sup> The shade of this term from the generalized scheme, in the algorithm in which we use the currency in barter with merchandise, is also necessary in an easier comprehension of the comparative advantage's measurement.

<sup>7</sup> The same effort made in analysing various cases is also for an easier usage of the trade costs' algorithm in the analytical scheme compared with the empirical calculations (Georgescu-Roegen, 1971); the discovery of mathematical relations between the triangle's sides). The efforts' forward decrease in the empirical calculation using the algorithm will justify this approach the analytical economy's principle being this way respected.

<sup>8</sup> The real costs' negotiation is made through contractual clauses which stipulate the place and time since when the costs are supported by the partner of whom the product's property is transferred. All trade costs yet represent additional consumptions of resources. In order to make observations their distribution is made in this case only for the product



consequence we suppose the prices' change –  $p_{me2}$  for E country and  $p_{mi1}$  for I country. The relative advantage's formula, correspondently modified for E economic entity will be:

$$A_{vmrE} = \frac{p_{me2}}{p_{e1}} : \frac{P_2}{P_1} \quad (5)$$

Note: In order for a real exchange to be identified the respect of the condition,  $p_{me2}$  to be smaller or equal with  $p_{e2}$ , is necessary.

In this case, of the simultaneous (4) and (5) conditions' respect, E economic entity's relative advantage changes only in the limit of the initial relative advantage's size, calculated without the trade costs. If (4) condition isn't respected for maintaining or increase the absolute value advantage in E country is necessary that the influence in  $A_{vmrE}$ , because of  $p_{me2}$  internal price's increase, to be bigger than the influence of the absolute advantage's decrease through the probable decrease of the quantity for sale from Pr2 product. The inflexion point is in this possibility the case in which  $p_{me2}=p_{e2}$ . The analyzed case is sort of similar as a mechanism with the one of the profit's total maximization once with the simultaneous increase of the sold quantity and of the unitary profit's decrease over the quantity's level of the minimum cost (the neoclassic case of the total profit's maximization).

The trade costs' allowance towards the imported products gives us additional significant information over the previous situation, being sustained by the additional condition (4). From this new perspective of the total and partial absolute value advantages' decrease once with the respect of the (4) condition, the main direction required to be taken into consideration, in a economic process, is that of the trade costs' reduction of the entire operation. The calculation of the comparative advantage's size in this new algorithm of the trade costs is necessary to take permanently in consideration the permanent reduction tendency of this size. It can be grounded at a general level that in the case with the trade costs a reduced comparative advantage will be achieved, sometimes more significant than the one obtained in a barter without trade costs.

In a barter operation a part of these costs can be reduced if the exchange operations' simultaneity for the two products is supposed, the reduction being possible for the fixed general

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which is sold on the internal market for which each partner give resources for its shipping in the country. At the single exportation, using the currency in exchange, the trade costs will be distributed over the exported product and will affect the trade deadline (the relative price)'s size.

costs connected to the trade operations. If there aren't any special terms in a supposed barter exchange the two transported products, for example, with the same vehicle in circuit or, in other cases, in parties with other products. The direction doesn't require to be detailed in forward because we would mostly maintain in a barter exchange case remote some real exchanges' terms frequently met as the analytical efforts doesn't appear justified anymore.

The positive regarded cases which refer to a usual operation, with the identification of the significant comparative advantage, are those of the importing (exporting) entities which supply from smaller distances or, in general, when the trade costs, including the transactional ones, can determine smaller selling prices than the existent ones for the native *identical* products sold on the internal market. The opportunity's check of the entrance on the market is made through (4) condition. This way (4) condition becomes essential in the new conditions, next to the increasing formulas from the basic algorithm. The distribution's case of the trade costs only over the imported products' prices isn't enough anymore because in this case the distribution of these costs and exported products' necessity is omitted. It is certain that over the imported products' prices – supposed identical with the internal ones which are sold in forward internally in competition with the imported ones – costs won't be accepted because these prices are reference points in the negotiation regarding the comparative advantage's achievement. Trade costs' addition to the initial prices can be accepted from the perspective of the individual interest's principle if (4) condition is respected even at limits and  $A_{vmt}$  is bigger than one and significant for both parts.

In forward we will observe the case in which the trade cost's algorithm in which only the exported product's prices will be affected. It has been indirectly deducted from the previous case that for Pr1 sample product, maintained for selling on E country's internal market, the inclusion of these costs in  $p_{e1}$  price of this internally sold product isn't justified. The judgment is similar for  $p_{i2}$  price of Pr2 product from I country. The trade costs will add in this new case, changing correspondently the analytical border of the exchange process, only for the exported sample products. In conclusion  $c_{Ex2}$  and  $c_{Eim1}$  costs' size will be considered zero or included in  $c_{Ex1}$  and  $c_{Eim2}$ . The case could be invoked and considered real from an analytical point of view if the negotiation clauses of stipulated imported and exported operations' costs would allow such an interpretation.<sup>9</sup>

In the new terms the formula of the changed total relative advantage,  $A_{vmr}$ , will be (6):

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<sup>9</sup> The utility of the case study will be proved in the exchange using the currency, taking into consideration including of the trade costs.

$$A_{vmrt} = \frac{P_{e2}}{P_{me1}} : \frac{P_{mi2}}{P_{i1}} \quad (6)$$

The observed case is different than the previous ones, of the proportional distribution of the costs over all products' prices or only over the imported ones. In this case it can be remarked that the total relative advantage of the two economic entities reduces in comparison with the initial situation.<sup>10</sup>

The comparison of the exported products' initial internal prices,  $p_{e1(E)}$  și  $p_{i2(I)}$ , with the changed level ones',  $p_{me1(E)}$  și  $p_{mi2(I)}$  (see note of (4) condition) isn't necessary in order to decide the opportunity of the internal exchange operation's unfolding (separate on each of the two internal markets) as in the previous case. The two products are exported in order to then be sold separately on the two internal different markets. Pr1 product is exported and sold on the internal market from I country and Pr2 product will be exported from I country in order to be sold in E country. Moreover, the forming and negotiation of the international prices is different than the internal prices' one, being different markets, including, usually, through the usage of other currency which doesn't provide a direct (easy) comparison between the internal and external prices' sizes. The (analytical) unification of the two internal markets with the external one for these four sample products is necessary only in order to analyse the total comparative advantage of the two economic entities which are parts of the exchange. For the separate analysis of the two partial advantages, fragments from the total advantage, the distinct analysis inside each border between the two internal markets is necessary and sufficient.<sup>11</sup>

The existence's necessity of the inferiority's condition of the new changed internal prices of the imported products towards the initial ones – through the unification of the internal markets with the external one – isn't necessary to be regarded, (4) condition being included in (6) formula in the analysis of this case. Introducing the trade costs in the exported products' prices, the relative comparative advantage reduces and tends to the unitary level of  $A_{vmrt}$  index. The comparison has in forward an analytical grounding in the other two studied cases before this one because the check of the comparative advantage's existence for the imported products compares in the basis of the

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<sup>10</sup> Through the trade costs' increase, the first ratio reduces and the second one increases, and the relative advantage tends to unity (1<sup>st</sup> value) no matter its initial size more than one. The variable distribution issue of the trade costs between  $p_{me1}$  and  $p_{mi2}$  won't influence  $A_{vmrt}$  size according to the addition's property at means of the two numbers variable as a size, of which sum is constant.

<sup>11</sup> The comparison of some internally sold product's price with an increased one of the same exported product, because of some trade costs' occurrence, can be accepted formally if the three markets, the two internal markets and the external one, unify in the fourth market inside the same analytical border.

minimum effort's principle, in (4) condition's basis, with the internal samples' prices of the same product internally sold.

Now another case requires to be finished and which through generalizing includes the three previous cases and also other possible situations: the simultaneous change of all prices with (4) condition's respect:

$$Avmrt = \frac{P_{me2}}{P_{me1}} : \frac{P_{mi2}}{P_{mi1}} \quad (7)$$

In this terms a smaller comparative advantage is going to be achieved. In normal conditions the absolute comparative advantage, who in fact interest every economic entity, cannot be bigger, because the (4) condition must be respected. The increase of the absolute one's size is possible due to the quantities' increase of imported (exported) products sold, effect which as a value can overcome in some situations changed prices' decrease (smaller than the initial ones). The simultaneous change of all prices depending on the established contractual terms will allow the global and unitary comprehension of the trade costs' case. The generalize of the trade costs' case assures also the comprehension of the previous combination of this algorithm with the currency's one. Through the existence of these two algorithms separately it will also be assured flexibility in solving different empirical cases.

The necessity of making in forward comparative advantages from exchange through taking into consideration the trade costs must regard the fact that the imported and exported products' external route there are also predicted in time bigger relative efforts because of the relative increase of the resources scarcity and, in some cases, can occur also higher risks in the external trade operations. In these terms the issue in what measures the relative and absolute advantage's change of each economic entity part of the external exchange is raised, in comparison with the case of the internal products' internal selling, can justify the exchange. Before proceeding the negotiation in an external exchange, the two entities calculates the relative and absolute advantages' size taking into consideration the trade costs, sometimes without a comparison with the initial case supposed without costs, because of the relatively wide calculations – exchange variants been possible with different quantities and prices – in the absence of the formulas' usage from the algorithm. These advantages' size (gains from trade) from the external exchanges is compared yet permanently with (and it adds) the ones from the internal exchanges which approximates at limit the initial case and of which are therefore different (Dogaru, 2003). In measure in which the internal market would allow also an inclusion of the quantities which would be in course of exportation, and the external

comparative advantage would become insignificant in comparison with the efforts, the merchandises' exportation would be given up.

In order to support the additional efforts, necessary to bring the products in sale terms through an external route, new costs are required. A higher level of the sale internal price of the imported product is that of the native merchandise already sold, can determine, as it has been shown, a smaller total profit than the one in which an internal product would be sold. It is necessary to be checked if the obtained profit, reduced in comparison with the initial case (without trade costs) – or has been considered achieved in a previous period – had as a reference point, justifies from the two economic entities' perspective the efforts connected to the barter exchange, in cases in which the parts could finish the negotiation. The possibility's absence of internally sell the product, noticeable in the industrial and agricultural products' case from the industrialized countries because of some increased productivity from these countries which generates an increased production, would support a compromise situation, the case being similar to the second best hypothesis regarding to profit maximization.

The two economic entities become successive the owners of the two products and the trade costs are distributed only for the initial prices, with the respect of (4) condition. A separation of the costs on the external route between the two partners is made only through some established contractual clauses. The merchandise can be delivered in multiple ways: Ex Works, Free On Board, Cost Insurance Freight, Delivered At Frontier etc. The costs made by the two economic entities are found in their book-keeping. It is most probable that the risk's transfer of the merchandise's property from the products' exchange to be made in the buyer or seller's borders, which can be differently placed if the two countries aren't neighbouring. In the neighbouring countries' case the transfer of the property right can be made over the delivering term of Delivered at Frontier – one of the cases in which the risks connected to the alien status element are reduced – so each of the two economic entity will be making costs for both products inside its national borders.

Following an equitable negotiation we could be lead to a just distribution of all the exchange's costs, no matter the one which makes the operations which determine the trade costs. Any case found in the empirical reality can be included in the generalized case through (7) formula. The sold product's costs, for operations made on the own national territory and which are included in the contractual task of the partner will be invoiced of the partner. Solving this limiting is quite easy. The commercial clauses separates the costs' level as each part will pay the established costs, distributed to each of both products, these still being found in the changed prices. Because the importation/exportation operations of the two economic entities, at least for one barter exchange,

are connected in some kind of spatial and temporal measure, it is necessary that the efforts to be distributed in some negotiations' basis, the proportionality's idea usually being a hypothetical case.

In the trade costs' case it can be permanently observed in the basis of the relative and absolute advantage's formulas a reduction of the total advantage towards the initial (hypothetical) case, without these costs. This algorithm's usage, which measures the advantage's change through the (external) trade costs' introduction, helps us to understand better some (important) limits in the exchanges' development between the countries. It can be remarked the fact that any resources' consumption connected to the spatial and temporal movement leads to a reduction of the comparative advantage noticed in comparison with the case without trade costs. This case can be understood for start in general terms without being necessary measured through this algorithm. The more rapid measurement of the comparative advantage (gains from trade) from the external trade operations, in the basis of these formulas – which assure the operations' efficiency of increase – is made through analysis' standardizing. Multiple cases' summarizing in a formal way in standard cases sustains the requirement achievement of the analytical economy's principle in the measurement of the comparative advantage through Manoilescu generalized scheme.

An increase of the (changed) relative advantage of one of the two economic entities in comparison with the initial one could suggest the movement to an inequal exchange, if the initial exchange supposed without costs is considered equitable. This unbinding of the analysis had as a purpose an analytical comprehension of the exportation and importation's „benefits” in the trade costs' algorithm. In the empirical reality the two entities initially and unitary negotiates the entire barter operation as the change towards the initial prices isn't usually separated measured by these entities as a rule. Therefore, the separate analysis of the prices' change from the barter operation – made through observing the level's increase of the total unitary prices, make up from the initial ones found in the origin country, next to which the unitary trade costs' size adds – is different as an analytical route from the negotiation of these costs of the two economic entities.

In the previous observations' basis it appears that the external exchange justifies according to the individual interest, in the relative advantage's basis, in the case when the advantage's level is significantly different (and is bigger) in comparison with the similar one from an internal exchange. This reference point is and will remain permanently in the study of the comparative advantage from the external exchanges. In the dialectical judgments it is necessary to regarded the absence of the sale' possibilities on internal market of the exported product and also, dual situation, the internal market's crowding with the imported products.

The resource consumption's increase through the international exchanges' intensifying is obvious. The observation is made as a signal which would show that a generalized globalization of

the exchanges, followed by a specialization which could support an increase of the trade costs, can generate a non-sustainable development, an increase of the relative resource consumption. In consequence, the identification of the optimum between exchanging goods at a certain distance with certain trade costs and locally producing those goods is one of the issues which require permanent solutions in a methodological frame of the economics. In each historical stage society, who reached a certain development point, can identify a relative border, established as a reference point, of the ratio between the main (initial) costs and the trade ones, which would support or not a spatial shipping of the merchandises according to these increased efforts. The resources' rarity, also technological level and the organizational stage are the three main coordinates which contribute at this relative border's identification.

An analysis' side which requires to be developed in connection with the comparative advantage is in measure in which, in a strict way, the size of the internal prices (with or without these unitary trade costs) will be attenuated in time through the direct achieved investments for the production of some goods in the countries which previously were importing these products. In these terms it will be possible to check if an external exchanges' reduction of the products for which the unitary trade costs are significant, followed by an importation of high technology, is to support the appearance of a high internal relative and absolute comparative advantage in a country's economy.

In consequence, it appears as a necessity in the main branches of an economy, such as industry and agriculture, to identify sectors and products, considered important because of the existent technological connections inside the national system, as through choosing the local production's solution of the good (location advantage) (Croitoru 2002) the relative consumption of resources would be decreased, because of the trade costs, on the one hand, and also because of the less advanced national technologies, on the other hand. If the imported technology's performance is increased by the existent technological connections from the existent clusters (or from the ones which will be created) in the national economy (Porter, 1990), means that the entities' decisions to choose this way – of the internal production with the imported technology – will assure a perspective of the total comparative advantages' relative increase formed from the internal and external exchanges, including through the volume's relative reduction of the products' international exchanges.<sup>12</sup>

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<sup>12</sup> The effects caused by the foreign investments, which can be achieved even by the technology's initial owner in the country where the initial product was imported, can't be analysed here. It is yet (very) probable, according to some information, that the periodical (annual) achieved profit to overcome these investments' level. Sometimes this is transferred in the technology's origin country or in a country with a low fiscality (Declaration of a MERCOSUR

According to Manoilescu generalized scheme, which includes from now on also the algorithm with the trade costs, we are significantly getting closer to the understanding of the way how the obtained analytical results can better support the process of making decisions regarding the exchanges from the empirical reality. It is certain that the new relative partial advantages' size of each side will oscillate in this case, depending on the capacity of negotiating the international prices, including the clauses through which the elements' costs of the external route are distributed over the initial prices. During the negotiation the issue of the trade costs' fair distribution to be raised. Being given a trade costs' size for the entire barter operation, the measure in which the costs are distributed between the two parts is necessarily to be negotiated. The trade costs' separation for each of the products, in the basis of some distribution criteria, will be negotiated in this common operation.

Forwarding this general analysis an obvious lack of the strictly delimitation possibility is remarked (in an empirical case) of the trade costs according to some established clauses from the negotiation process. It can be considered – as we have previously shown – that the modified internal prices are proportionally increased with the initial prices or after other criteria considered mainly just, as an example, the relative negotiated advantages' size before these costs' distribution. If measure of this advantage will be proportionally distributed with the volume of value of each product – country the total trade costs are equally distributed in two sides.<sup>13</sup> From this perspective in a barter operation the traffic's costs of the two products can be considered, as it has been shown, in a certain manner common in the tendency of optimization its size, from each part's perspective. This case's formalization in the trade costs' algorithm allows also the analysis of some other typically cases more detailed.

The identification of this analytical case with the change only of the exported product's price,  $p_{me1}$  and  $p_{mi2}$ , by each entity has as a purpose to make the comparison *in simplified terms possible*. Therefore, in case of such distribution of the trade costs, it has been quite easily remarked that each part's comparative advantage is smaller than the standard situation (the initial one, without the trade costs). Yet in any case, the exchange is possible if the modified prices assure a total and relatively small advantage than the initial hypothetical case, yet considered acceptable for both sides. In the opposite case, through the overcome of the native products' national prices by those of the imported products – at comparable qualities/characteristics of the equaled products through

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representative in 2002 in Economistul' journal). This direction is yet necessary to be adequately sustained, according to the national interest, also through economical-legal norms adopted by the country which chooses such a strategy.

<sup>13</sup> The distribution's equality in this criteria's basis considers the fact that the two merchandises' values, expressed in international prices, are equal (the barter's main condition).



the hedonic prices – a reduction of the profit's volume is estimated because of the possible reduction of the sold quantity. The acceptance of the initial prices' size of the commercialized native products as a maximum level of the imported products' prices on the internal market is a main task (reference point) in the comparative advantage's study in the basis of the trade costs' algorithm.

The external costs' case becomes an important argument in order to support the infant industries' development through the technology's importation – achieved with own efforts or through foreign investments – for the products or sectors at which the these costs' size significantly reduces the comparative advantage. Followed from a national perspective, the smaller advantage – because of these costs' volume – obtained for some products necessary to be imported/exported, can be partially compensated through the bigger advantage achieved through eliminating the international trade costs and through the relative decrease of the internal prices (costs) because of the advanced technology's importation for other products which will be made in the domestic production. The new technology's usage – omitting the temporary absence of the labor force's skill in its usage and also of a high level of correspondent management, disadvantages which may be covered in time – is supported by the idea of the relative equality of the endow regarding the humans (or at least at the wide collectivities' level), no matter the geographical place. Mainly, it is yet grounded by the reduction's necessity of the external trade operations' costs.<sup>14</sup> The entropy's law sits permanently at the necessity's basis of the trade costs' reduction.

In some cases the foreign investments made in the manufacturing can be encouraged, at which an internal relative advantage is identified, issue by decrease of the shipping's value and of other external costs from the country's perspective where the new production capacities will be installed. Also other advantages may occur, in connection with the increase of the labor force's usage, of the added value, the participation as shareholders of the original entities which have a direct interest in developing the local (Korten, 1995), at the firms with foreign capital or at their branches created on national territory.

A case which will also require to be in our attention from now on is that of the initial importation – exportation scheme's reverse in the new changed prices' basis of the two merchandises because of the unitary trade costs' addition: the good which initially could have been exported now is advantageous to be imported. Here the reverse appears because of the asymmetrical

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<sup>14</sup> The relative reduction's case of the trade costs can be considered an addition (un appendix) of Ronald Coase' theory regarding the (optimum) size's increase of the economic entity, from the support's perspective, in this case, of the trade costs' reduction in the international exchange. In this situation, regarded as a Whole, the country (national economy) can be compared with an economic entity.

distribution of the trade costs over the prices of the two exported products and in comparison with the initial case. At this general level the detailed case, of the localization of the trade costs' distribution, can't be more rigorously supported but in actual cases.

From the national interest's perspective and, therefore, of the individual one, on long terms, the follow of at least the internal prices' development at the main products which have an important weight in a country's economy is yet necessary. The internal comparative advantages (Dogaru, 2003) are necessary to be observed in parallel with those from the external exchanges. Some contractual clause's modification during some contract's unfolding makes necessary the international relative price's negotiation in favor of the one which has taken over the effort efficiency according to the new clause. It would be necessary that the relative advantage's level to maintain or slowly increase in the performer's favor of the new task. In the case of a long term exchange any modification of this kind significantly influences the value comparative advantage during the contract.

Next to these typical cases which can occur at the existence's identification of total and partial comparative advantage, the case's observation is necessary where adding the internal unitary prices and to the unitary production costs of the buying – selling contract, necessary in a real product exchange, it reaches the unique case (extreme) in which the exchange can't be made because of the internal and/or international prices' proportionality. In other extreme case, previously signaled, is that, through the trade costs' addition the importation/exportation operation's meaning to be reversed. In these terms it is possible that the interest doesn't exist in making such an exchange from the sale's perspective, although there is a comparative advantage, and a class (group) of relative international prices is identified, which could assure partial comparative advantages for each part.

In the real-empirical exchanges the internal (changed) prices connect between them in order to identify a general comparative advantage's existence. In forward the relative advantage of each part is correspondently calculated in the basis of the internal relative prices from each country and of the negotiated international prices. If two relative partial advantages accepted by the two partners are simultaneously obtained, and the imported products' prices are under the level to the internal ones at which the existent products from the internal market are sold, then the exchange is possible to be made. The previous explanations given in the trade costs' algorithm basis, assure the adequate usage of the three cases and separately of the generalized one.

In conclusion, the passing from the three cases to the generalized one makes through (4) condition's introduction. The initial prices' change until the initial selling prices' limit, valid on the internal market, in terms of equivalent quality (the hedonic price's hypothesis), assures the passing

from the three cases to the generalized one. Their separate explanation assure the trade costs algorithm's combination with the currency one, guaranteeing the respect's check of the analytical economy's principle: the decisions in the area of the international exchange in real – empirical cases are made in the requires' basis of the two algorithms, standard calculation conditions sustaining of these decisions' efficiency.

### Premises

The trade costs algorithm's inclusion in the Manoilescu generalized scheme fills an analytical gap, which makes the identification schemes and of the comparative advantages' measurement to be operable and could be used by the enterprisers once with the comprehension of the algorithms' usage –, supporting the efficiency's increase of the calculations, from the various cases occurred during the negotiations in a short term. If the trade costs' size equals the initial comparative advantage's volume, without trade costs, the exchange can't be made anymore but for the case of an unequal exchange, in which at least one of the sides won't achieve trade costs.

The historical/secular size of the resources' prices, because of the relative increase of their rarity – including the fuels' prices which cause the size of an important part of the trade costs, although for some products the prices can't be relatively reduced –, will determine more and more, in the future, as a reference point this case of the comparative advantage's absence or its size at a level which doesn't interest the sides. The markets' agglomeration because of the number and volume's increase of the products – as a consequence of the population and technological level's increase, although consumes from a resources' volume limited in time and space which can be accessed by human – supports the identification's possibility of some similar cases shown to the previous ones (to limit of the consume). The cyclity's matter of the manufacturing processes which consume these resources, available for currency's wave – which is only an instrument in the economic process – signaled and grounded in the entropy law's basis, is one which starts to lose ground inside economics. The trade costs algorithm from Manoilescu generalized scheme makes in a constant way a little light over the irreversible consumption of the resources, including the production factors one. The comparative advantage's principle justifies us the extension's possibility of the commercial trades, and yet through the trade costs algorithm an important limit is identified in the international exchanges' achievement.

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<sup>15</sup> The Romanian edition is the translation of the German edition (*Die nationalen Produktivkräfte und der Aussenhandel. Theorie des internationalen Warenaustausches*), 400pp, Junker und Dünhaupt, Verlag, Berlin, 1937). According to translator in Romanian edition have replaced the paragraphs §72 and §73. The quotation of the paragraphs is made after Romanian edition. Others previous editions: *The Theory of Protectionism*, London: King, 1931; *Theorie du protectionisme et de l'échange international*, Paris: Giard, 1929

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